Peer Review Requirement for Forest Stewardship Council – Canada National Boreal Standard

PIC Report: An Evaluation of the Pre-Industrial Forest Fire Regime Conditions - Spray Lake Sawmills FMA, Alberta

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INTRODUCTION

This report begins with a description of disturbances that have influenced the landscape vegetation characteristics of the Spray Lakes Forest Management land base. Forest fires are cited as the primary disturbance agent and fire cycles and mean-fire-return-intervals for landscapes in and adjacent to the FMA are provided. Historically large stand replacement fire events are associated with this region of Alberta and the use of Natural Sub Regions to summarize fire evidence provides important comparisons. The author describes the consequences of decades of fire suppression actions that interrupt fire cycles and pre-dispose future forests to mega fire events that would have negative impacts on ecological and watershed integrity, and sustainable forest management. The author accurately describes the consequences of an aging and more flammable forest and cites recent fires in Alberta as an illustration of the extreme fire behavior associated with current forest conditions. In addition the 2010 fire season in British Columbia is referenced as an example of the additive impact of current forest conditions, drought and a mountain pine beetle epidemic. The documentation of historical fire regimes is fundamental to the FSC certification process and this author has provided a credible analysis and scientific conclusion to support the FMA Forest Management Plan and FSC certification. The reviewer agrees with the author that Spray Lakes Sawmills has a unique opportunity to introduce innovative and adaptive harvesting strategies that contribute to a sustainable forest mosaic reminiscent of that created by wildfire.

CURRENT FIRE REGIME CONDITIONS

The current fire regime status on the Spray Lakes FMA is influenced by an aggressive fire suppression policy that contributes to a flammable forest environment and is not consistent with historical landscapes. The author has provided a summary of fire regime characteristics by natural sub regions that allow the reader to understand causes, timing and size of fires in recent years. Fire occurrence and fire cause data are discussed, both on and adjacent to the FMA and the threat of wildfire continues to be higher for man-caused fires than for lightning fires. Recreation trends in the area suggest that an increase in man-caused fire could be anticipated. The consequence of fire suppression is illustrated by the current (1961-2010) fire cycle of 1701 years which suggests that in the absence of frequent, low intensity fires, the forest conditions have increased the potential for large, catastrophic fires. In the report's conclusion, the author references "target zones" that could guide harvesting plans in stands with the shortest fire intervals and this addresses the requirement for maintaining ecological integrity. In addition, the reviewer suggests strategic harvesting designs that break up the continuity of a flammable forest and serve as fire barriers in the short term. This approach would contribute to reduction of wildfire threat at the landscape level at the same time that disturbance deficits are adjusted.

HISTORICAL FIRE REGIME CONDITIONS

The historical fire regime is a fundamental benchmark for forest management planning that recognizes the natural range of variability at the landscape level. The author has thoroughly documented the historical fire regime and contrasts this with the current fire regime status on the FMA. The illustration of the range of vegetation complexity is useful for approximating fire intensity and severity which in turn has implications for forest management planning. The strong correlation of number of fires with fuel continuity is worth emphasizing as increased fuel continuity is the most dominant condition associated with aging forests.

PRE-INDUSTRIAL FOREST CONDITION

The author's description of the pre-industrial conditions on the FMA is consistent with documentation throughout the Alberta East Slopes region. Anthropogenic fire starts out-numbered lightning fire starts historically as a result of settlement, travel corridors, and indigenous burning throughout Alberta's East Slopes region. The 2009 Alberta ratio of man-caused and lightning fires is 70%:30% even with a very aggressive fire prevention program and recreational activities are the leading fire cause in the East Slopes. Again, the author's description of significant historical fires is consistent with fire data throughout the East Slopes.

PIC MEAN FIRE RETURN INTERVALS

This section is a very strong contribution to the overall report as an extensive field program is required to provide the fire dates and burning season. The evidence of a low number of fires in "normal" years and a high number of fires in rare "severe" years prevails throughout the FMA. 1910 stands out as a severe year in all of the Natural Regions, and both Montana and Idaho experienced catastrophic fires in the same year. A repeat of the 1910 fire season is problematic however this report clearly illustrates the future potential of mega fire events.

PIC SIMULATED MEAN FIRE RETURN INTERVALS

STANDOR simulation runs based on the documentation from the previous section provide additional information useful to future forest management plans. This aspect of the report introduces both forest fuel types and real fire weather statistics to simulate fire growth and track burn perimeters to produce stand origin maps. These stand origin maps are the basis for long term forest management planning that conforms to the natural range of variability at the landscape level.

PIC SIMULATED STAND ORIGIN MAPS

These maps support the author's conclusion that long-term patterns indicate definite trends in terms of where younger aged forests tend to prevail and where old-growth forests have the ability to persist. The earlier observation that a west/east gradient of fire impact exists on the FMA is supported in this section of the report. Although the simulation exercise cannot quantify forest species succession, the reviewer agrees with the author's subjective comments about this subject.

CONCLUDING REMARKS

From a forest management perspective this report supports the author's recommendation to introduce harvesting plans that prioritize the stands that are significantly overdue for a disturbance based on the MFRI maps. Use of the age mosaic patterns is a further refinement for harvest block distribution, however there is an opportunity to also consider introducing landscape barriers to fire spread that would be consistent with the above. Given the timelines of forest management plans, a short term mitigation of wildfire threat could be critical to the long term sustainability of fiber production and ecological integrity on the FMA.